Pennsylvania

Science and Engineering Profile

Characteristic	State	U.S.	Rank	Characteristic	State	U.S.	Rank
Doctoral scientists, 1999[1]	23,820	518,670	5	Total R&D performance, 1998 (millions)	$8,762	$214,668	8
Doctoral engineers, 1999[1]	4,290	107,100	8	Industry R&D, 1998 (millions)	$7,083	$163,480	8
S&E doctorates awarded, 1999[1]	1,279	25,953	6	Academic R&D, 1998 (millions)	$1,333	$25,342	4
of which, in engineering	27%	21%		of which, in life sciences	58%	57%	
in life sciences	21%	25%		in engineering	18%	16%	
in social sciences	14%	16%		in social sciences	6%	4%	
S&E postdoctorates, 1998[1]				Public higher education current-fund			
in doctorate-granting institutions	2,276	39,494	5	expenditures, 1997 (millions)	$4,941	$125,236	5
S&E graduate students, 1998[1]				Number of SBIR awards, 1990-98	1,178	35,413	8
in doctorate-granting institutions	19,750	422,834	6	Patents issued to state residents, 1999	3,753	83,901	5
Population, 1999 (thousands)	11,994	276,580	6	Gross state product, 1998 (billions)	$364	$8,800	6
Civilian labor force, 1999 (thousands)	5,969	140,536	6	of which, agriculture	1%	1%	
				manufacturing, mining, construction	24%	22%	
Personal income per capita, 1999	$28,605	$28,542	17	transportation, communication, utilities	9%	9%	
				wholesale and retail trade	15%	16%	
Federal spending				finance, insurance, real estate	18%	19%	
Total expenditures, 1999 (millions)	$69,448	$1,508,933	5	services	22%	21%	
R&D obligations, 1998 (millions)	$1,886	$70,445	13	government	10%	12%	

NOTE: Rankings and totals are based on data for the 50 States, District of Columbia, and Puerto Rico. Reliability of the estimates of industry R&D and of doctoral scientists and engineers varies by State, because the sample allocation was not based on geography. The rankings do not take into account the margin of error of estimates from sample surveys.

[1]Data on graduate students, doctoral scientists and engineers, and postdoctorates include all graduate degree (except M.D.) candidates and recipients in S&E fields, including health fields. Data on S&E doctorates awarded do not include health fields.

Federal Obligations for Research and Development by Agency and Performer: Fiscal Year 1998

Agency	Performer							
	Total	Federal Intramural	All FFRDCs	Industrial firms	Universities & colleges	Other nonprofits	State & local government	State rank, total
	[In thousands of dollars]							
Total, all agencies	1,886,258	132,927	17,103	702,304	853,437	173,970	6,517	13
Department of Agriculture	42,490	30,989	0	113	11,210	178	0	9
Department of Commerce	5,924	109	0	3,550	653	1,612	0	22
Department of Defense	587,534	29,508	16,884	391,030	115,840	34,272	0	14
Department of Energy	340,893	44,828	0	257,371	25,959	12,735	0	5
Dept. of Health & Human Services	725,576	19,222	0	16,201	573,450	116,609	94	5
Department of the Interior	8,140	6,223	0	169	1,482	0	266	21
Department of Transportation	9,039	123	219	1,169	1,371	0	6,157	14
Environmental Protection Agency	4,751	0	0	136	4,615	0	0	22
National Aeronautics and Space Admin	51,497	1,925	0	31,809	16,856	907	0	16
National Science Foundation	110,414	0	0	756	102,001	7,657	0	6
State rank, total	13	20	18	12	3	5	11	na

NOTE: Federal R&D obligations are as reported by funding agencies. Ranks and totals are based on data for the 50 States, District of Columbia, and Puerto Rico.

KEY: FFRDC = federally funded research and development center; SBIR = small business innovation research; na = not applicable.

SOURCES: Prepared by the National Science Foundation/Division of Science Resources Studies. Data compiled from numerous sources -- see the section, "Data Sources for Science and Engineering (S&E) State Profiles".